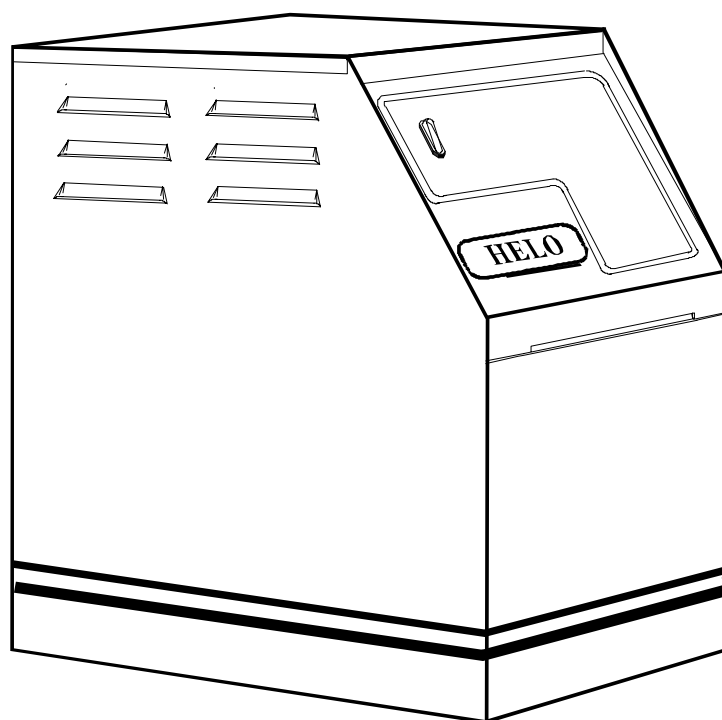


SAUNATEC GROUP Ltd

HELO HSS M and HST M STEAM GENERATOR



User and Installation Guide for models:

HELO HSS M 34, 47, 60, 77.

HELO HST M 90, 120, 140.

Technical information:

- Voltage: 400V – 415V 3N~ 50Hz (230V – 240V 1N~ 3.4 – 7.7 kW)
- Power options 3.4kW-14kW
- Protection Class: IP 20
- Water tank material: AISI 304, steel
- Two-stage control for heat elements. **Not 230 V 3~**
- HSS generator dimensions 325 x 315 x 185 mm
- HST generator dimensions 410 x 400 x 200 mm

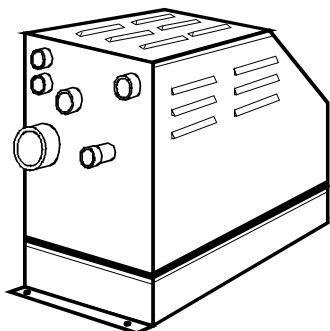
Use:

- Automatic draining and rinse programme
- Automatic fill and water level setting
- Floor or wall mounting
- Digital control module:
 - Temperature control
 - Time control
 - Light control
- Control module may be fitted on inside or outside of steam room
- Designed for home and professional use

Service:

- Replaceable elements – two standard, one with overheat protection fuse
- Easily serviced components:
 - Circuit card
 - Heat elements
 - Steam room sensor

As an **optional extra**, the generator can be fitted with a Descaling Kit, which facilitates the addition of citric acid solution into the tank.



INSTALLATION AND USE

HSS M and HST M generators are designed solely for application in steam bathing facilities. Use of the steam generator for any other purpose is not permitted.

The manufacturer is not responsible for damage caused by equipment that has been incorrectly installed or used or any consequential loss that may occur.

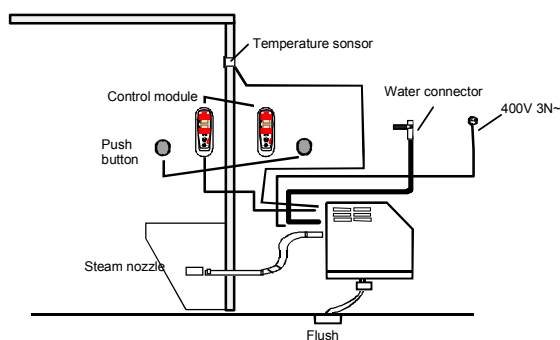
Prior to electrical connection, plumbing of pipes for water feed and steam delivery must be completed. All joints should be properly connected and sealed using PTFE thread tape in screwed connectors. Welding of joints is, however, recommended.

The area where the generator is installed must be dry and well ventilated to dissipate local heat from the components – note rating is IP 20. Recommended distance from structures above and to the sides is no less than 30 cm. Consider the space needed around the generator for routine maintenance. For the emptying of the tank there should be drainage available in the vicinity of the equipment.

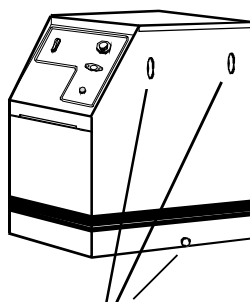
The generator can be wall mounted in which case screws and mounting methods must be appropriate to the wall material. The generator weights when filled with water are: HSS, 13 kg and HST, 17 kg (approx.).

When using the automatic flushing valve, ensure that flush pipe is directed towards the drain.

HSS M and HST M generator installation



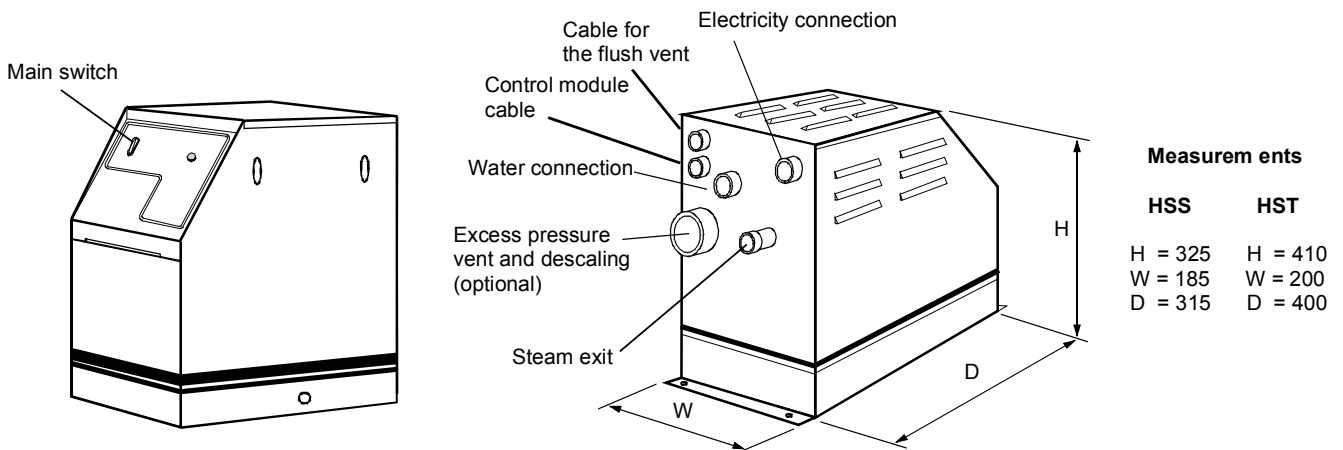
Placement of control panel and pressure button



Steam generator's wall mounting holes 3 pcs

The control module can be fitted either inside or outside the steam room. When fitted outside the steam room, a separate thermostat, which is connected to the circuit board, must **always** be used.

STEAM GENERATOR CONNECTORS



Water and Steam connection

Connect the ¾" flexible water pipe (included in the package) from the water connection in the equipment (see picture) to the cold water supply in the building. Water pressure must fall between 0.2 and 10 bar. The water supply must have a stop valve, which can be used to isolate water supply for maintenance or when steam room is not used for extended periods.

Installation must comply with local requirements

In the steam pipe connection it is recommended to use at least 18x16mm (steam generator power 3.4 kW - 9.5 kW) and 22x20 mm (steam generator power 12.0 kW - 14.0 kW) copper pipe or similar size silicone pipe suited for high temperatures. The steam pipe diameter must be constant throughout. Subject to the location of the generator the steam pipe should rise or fall on a steady gradient from generator to steam room. It is essential that the pipe **MUST NOT** include traps as the water which collects will cause restricted steam flow and spitting at the steam head. Any water from condensation in the pipe must be allowed to flow freely back into the steamer or into the steam room. If an essence pump has been fitted to the steam generator, the pipes must **always** be on a downward gradient from the generator to avoid any chemicals reaching the tank. The steam pipe should be maximum length 5 meters and fully insulated both for safety reasons and to minimise condensation.

WARNING: Hot steam can cause burn injuries.

The electric magnetic vent used for emptying the generator's tank is fitted to the flushing pipe. A manual flushing stop valve can also be used with the generator. (Optional extra)

It is good practise to empty the tank after each use. This will maximise the life of this equipment and reduces chalk/scale build-up.

ELECTRICAL CONNECTIONS

The steam generator will be semi-permanently connected to the electricity mains. Local regulations must be observed.

Steam generator	Power KW	400V-415V 3N~ Amp	230V-240V 1N~ Amp	230V3~ Amp	Room size m ³ *)
HSS 34	3.4	5	15 / 14	8	1.5-2.5
HSS 47	4.7	7 / 6,5	20 / 19	12	2.5-5
HSS 60	6.0	9 / 8	26 / 25	15	5-7
HSS 77	7.7	12 / 11	33 / 32	19	7-10
HST 90	9.5	15 / 13		24	10-12
HST 120	12.0	19 / 17		30	12-15
HST 140	14.0	23 / 21		35	15-18

All electrical connections should be completed by a qualified electrician.

*) Walls of concrete, brick or stone and cold wall lining materials will require a higher power output to heat the room. Air conditioning and good ventilation may also need more power.

The required power can be estimated using the following formula.

Capacity (m3) x K1 x K2 = Required power (kW)

Ventilation	K1 = 0.75
No ventilation	K1 = 0.52
Acrylic walls	K2 = 1.00
Light wall: board + tiles	K2 = 1.25
Heavy wall: stone, concrete + tiles	K2 = 1.50

Two-stage control of the steam generator:

The heat elements have a two-stage control. **Not 230 V 3~p.**

Example:

Set temperature is 43 °C. When this temperature is reached the contactor turns off two elements, leaving one element connected via relay-switch on the circuit board, ensuring steady temperature and continuous steam production for the duration of the steam bath. Once the temperature has dropped by one degree (1 °C), all the elements are switched back on. If the temperature rises by one degree (1 °C), all the elements will be switched off. .

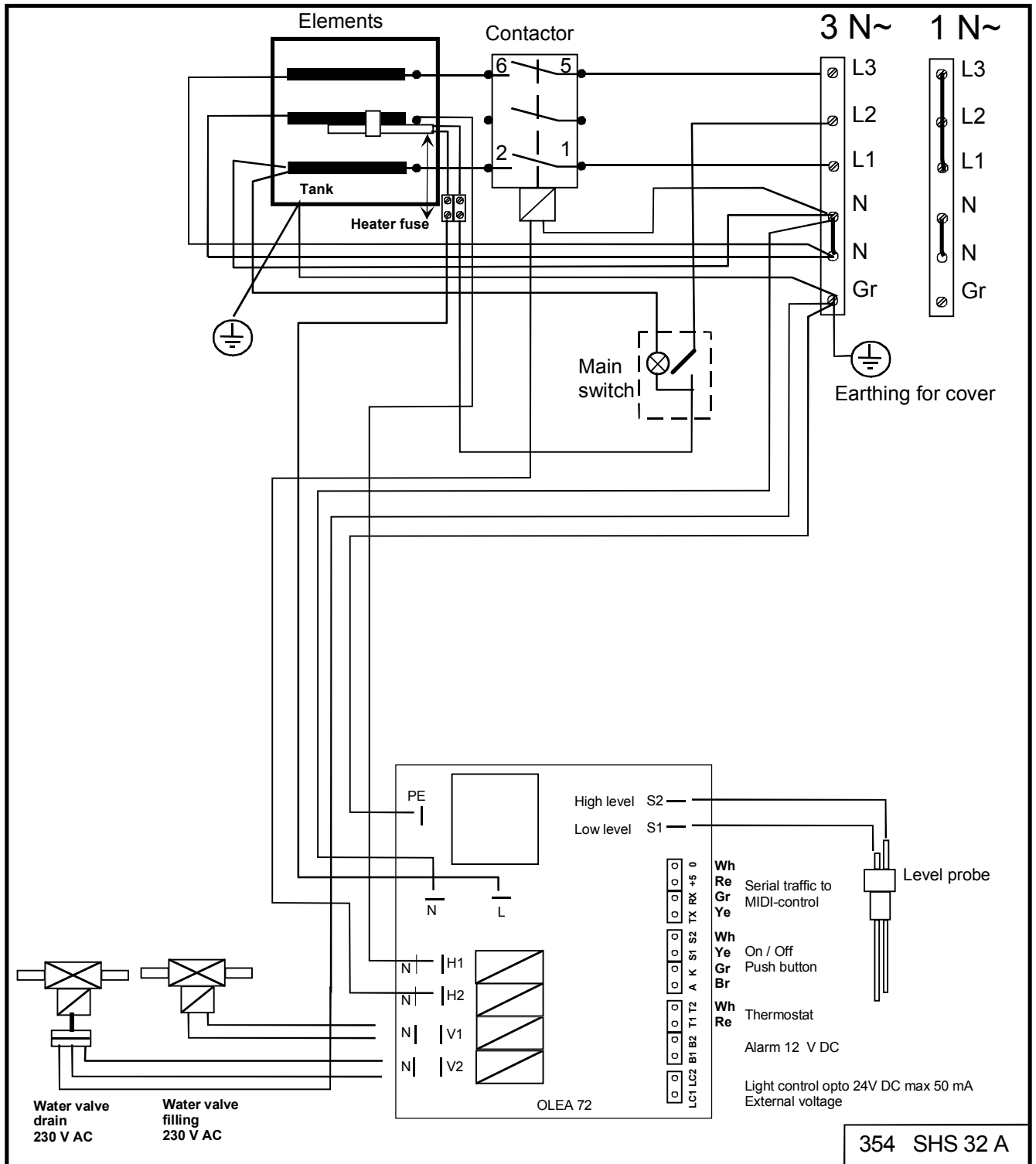
WIRING DIAGRAMS

HSS M 3,4 kW - 7,7 kW

3 N~ 400 V - 415 V

1 N~ 230 V - 240 V

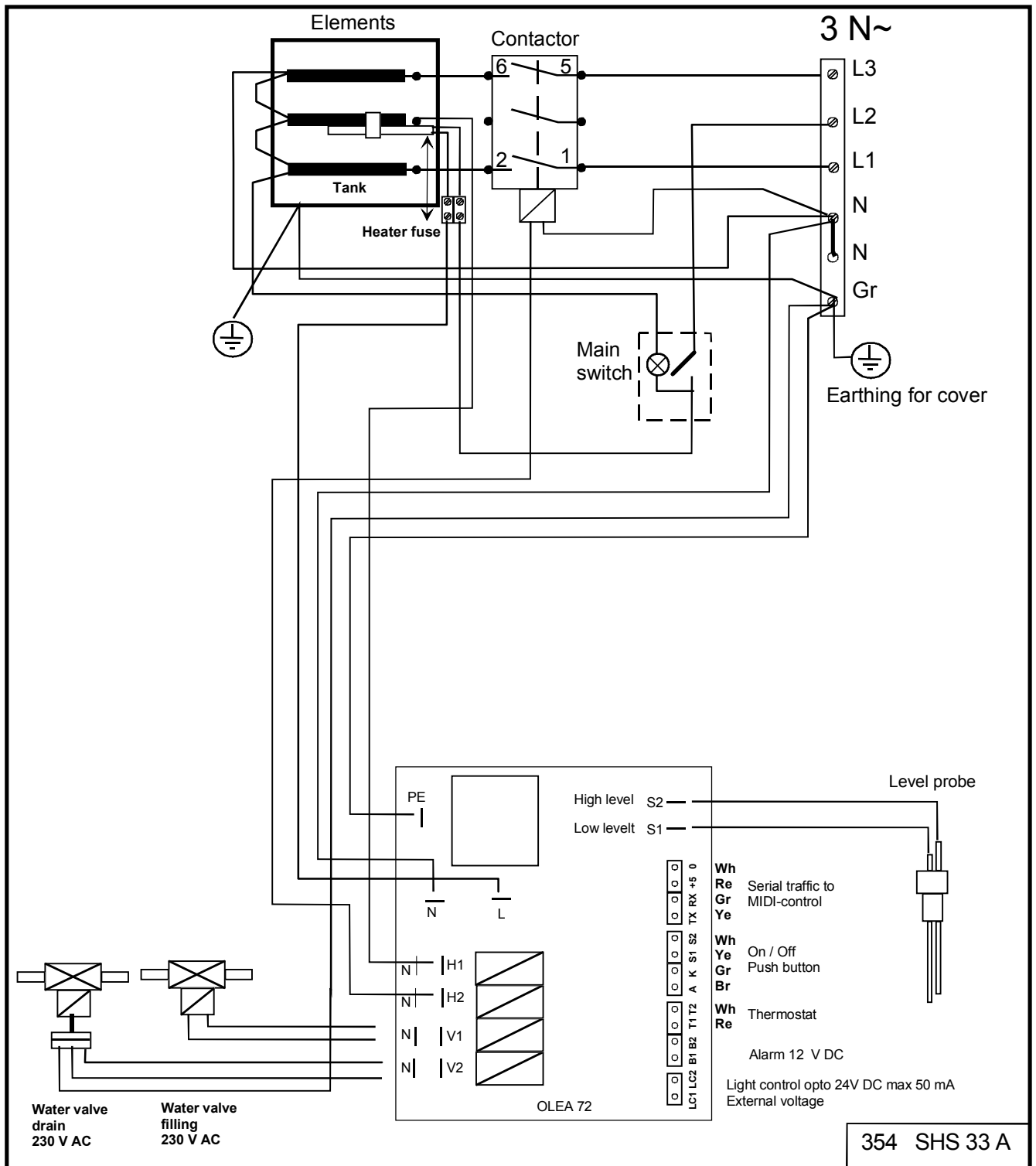
50 - 60 Hz



HST M 9,5 - 14 kW

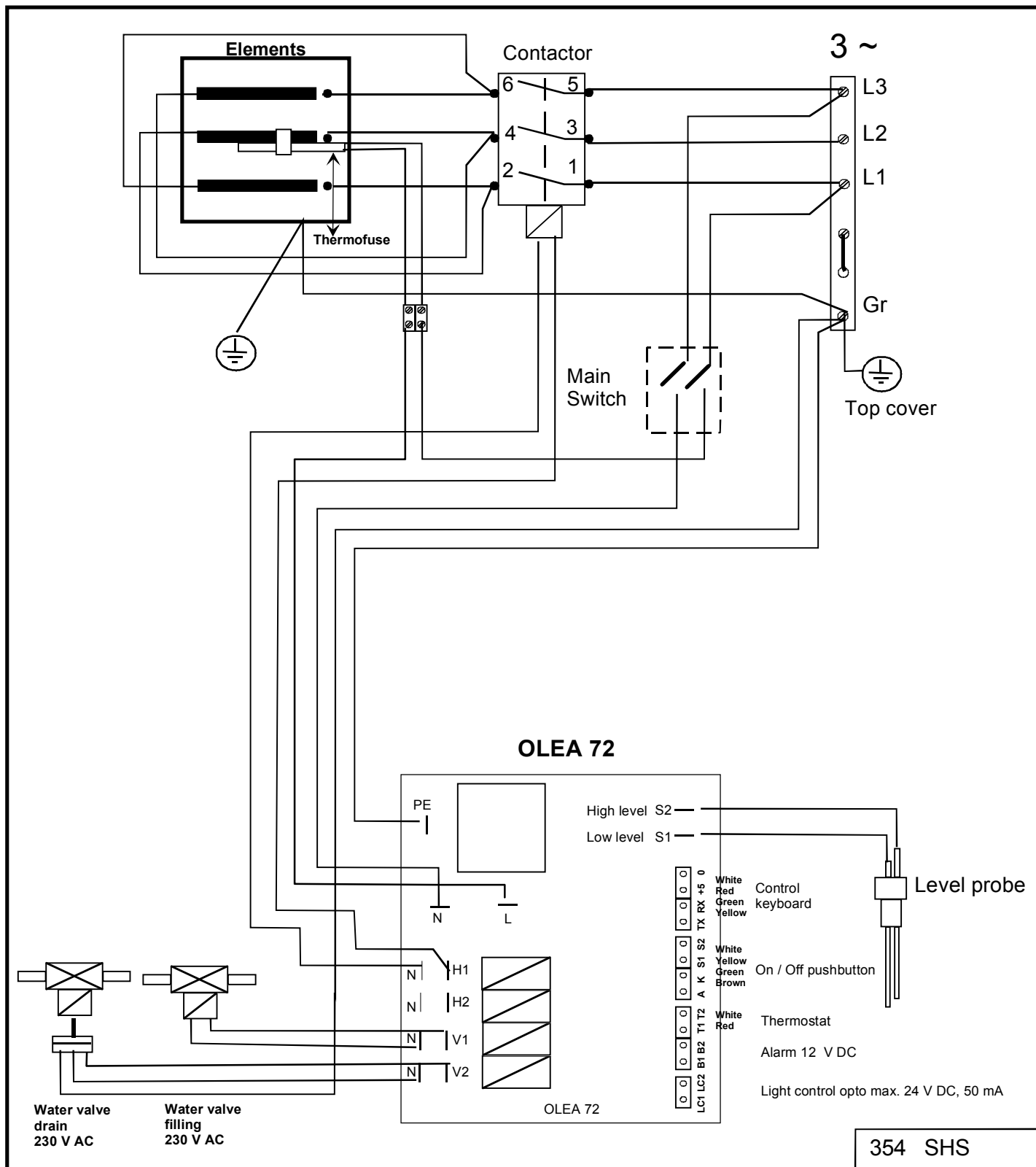
3 N~ 400 V - 415 V

50 - 60 Hz

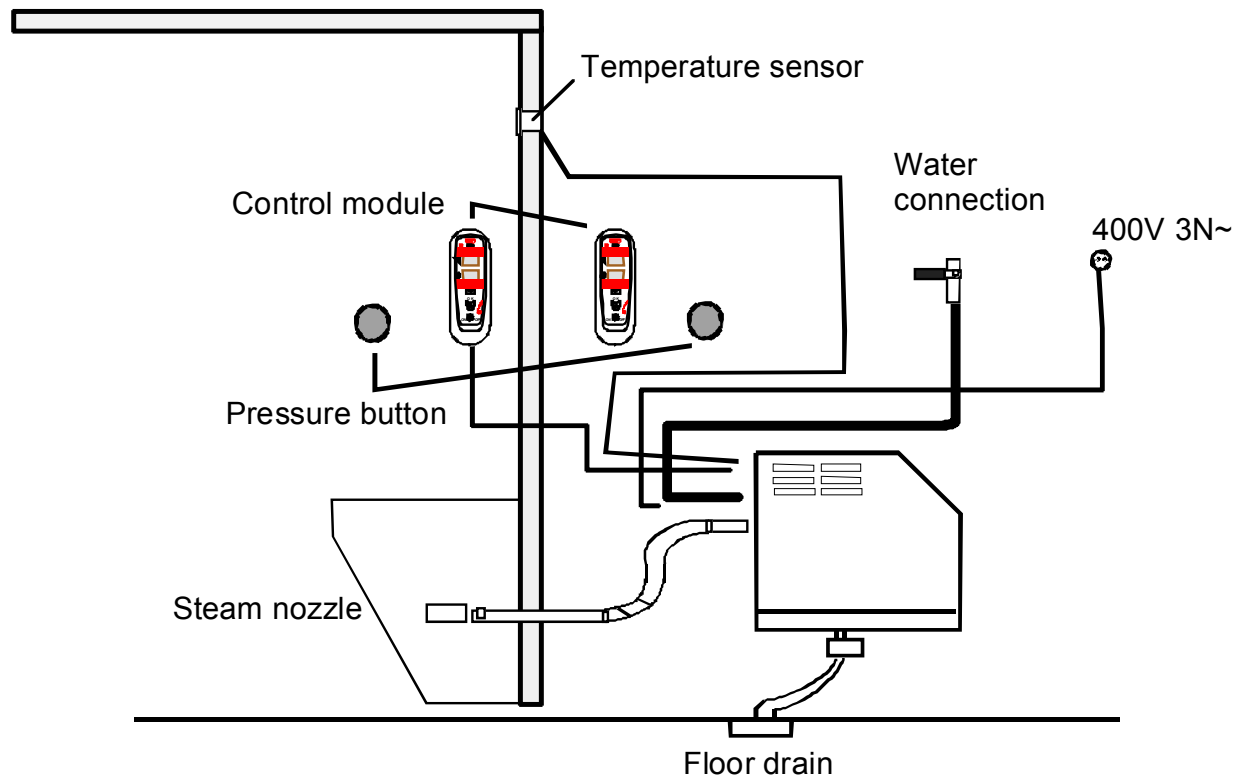


354 SHS 33 A

HSS M 3,4 kW - 7,7 kW **HST M 9,5 kW - 14 kW** 3 ~ 230 V 50 - 60 Hz



INSTALLATION OF THE GENERATOR AND OPTIONAL EXTRAS



Control module may be installed inside the steam room. If the control module is fitted outside the steam room or so low within the steam room that its own thermostat does not show the correct temperature, a separate thermostat which is connected directly to the circuit board must be used. It must be mounted at a height of 170cm from floor level and preferably opposite the door (see illustration).

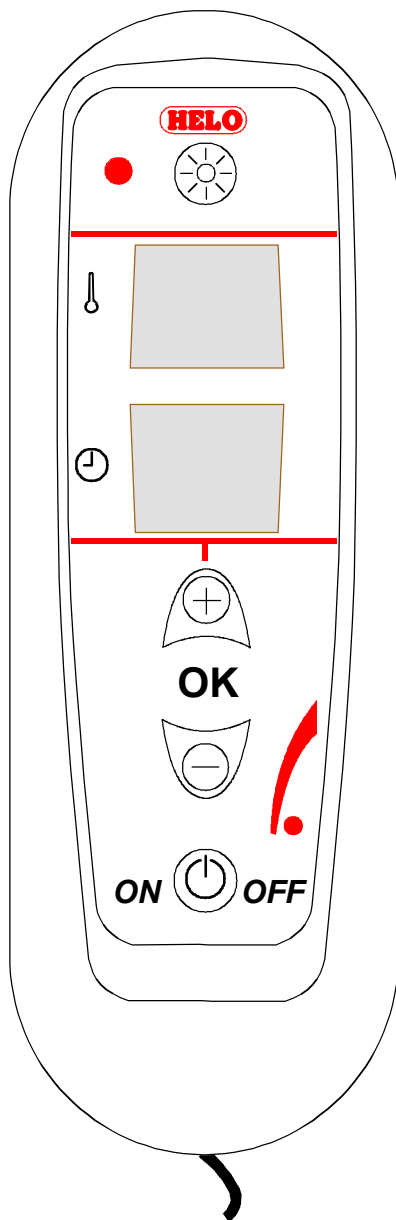
When the **push button** is used, the provided limiting thermostat must **always** be installed, to ensure the temperature does not rise above +50 °C. See the separate installation and connection diagrams.

Steam nozzle(s) must be fitted approx. 20 - 40 cm from the floor either under the seat or on the wall in a position such that hot steam cannot burn the feet. When fitting nozzles, one must also ensure that they cannot be inadvertently touched. **The temperature of the steam is +100 °C** and it can cause burns.

The **thermostat** is fitted at a height of 170 cm from floor level and preferably on the wall opposite the door.

The hole for the thermostat should be sealed with silicone or similar to prevent moisture ingress to the wall. The thermostat is connected directly to the circuit card of the generator.
(see connection diagram.)

MIDI CONTROL MODULE FOR HSS M AND HST M STEAM GENERATOR



Light control

Temperature display

Time display

Temperature setting 25 - 50 °C

Time setting 0 - 4 hours

Temperature sensor

Steam generator On / Off

Digital control module

- ON / OFF button for starting / stopping the steam
- OK button
 - Bathing temperature selection button (temperature display flashing)
 - Bathing time selection button (time display flashing)
- plus button (+) for increasing the setting of time and temperature
- minus button (-) for decreasing the setting of time and temperature
- Light control button, to switch max 24 V DC, 50 mA (normal open)

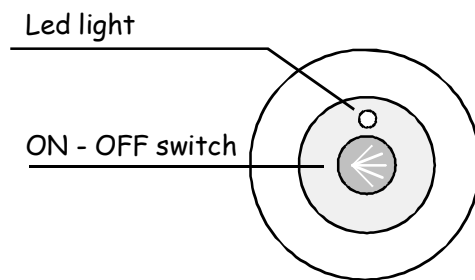
Control Module functions

The steam is started from the control module by pressing the ON/OFF button. After this, the temperature display will flash. The temperature may be set with the + and - buttons in 1⁰ increments from 25 °C min. and 50 °C max. When the desired temperature is displayed press the OK button to set the bathing time. The display flashes and the time can be set with the + and - buttons in 1 minute increments up to 90 minutes. Above this the display switches to hourly mode to max. 4 hours. The display will then show full hours until countdown reaches 90 minutes, when the readout will revert to minute mode.

Light control

Lights can be controlled with the control module button, when the led next to the button is lit. Connectors LC1 and LC2 on the circuit board are for light control. External voltage is connected to the circuit board at 24 V DC, which is connected to LC1. When the lights button is pressed, a transistor on the circuit board transfers the voltage into LC2, which carries out the actual light unit control.

PUSH BUTTON



Functions of the button

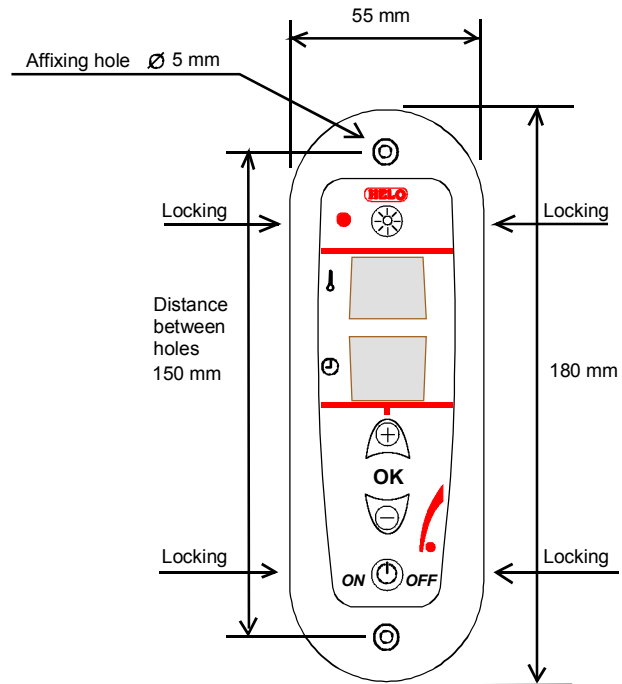
When started with the button, the generator will run for 30 minutes and the led above the button will light. The time cycle is fixed at 30 minutes and the generator stops automatically. The generator can be stopped at any time during the cycle by pressing the button and the led light will switch off. The steam generator can then be re-started as and when desired.

NOTE! When using this button control, the thermostat separate must **always** be fitted. The thermostat will ensure that temperature in the steam room will not rise above 50 °C. The two-stage control works in the pressure button version so that once the thermostat detects 50 °C two of the heat elements will be switched off by a contactor. Once the temperature drops by one degree, all the elements will be switched on again. If the temperature rises over 50 °C, all the elements will be switched off.

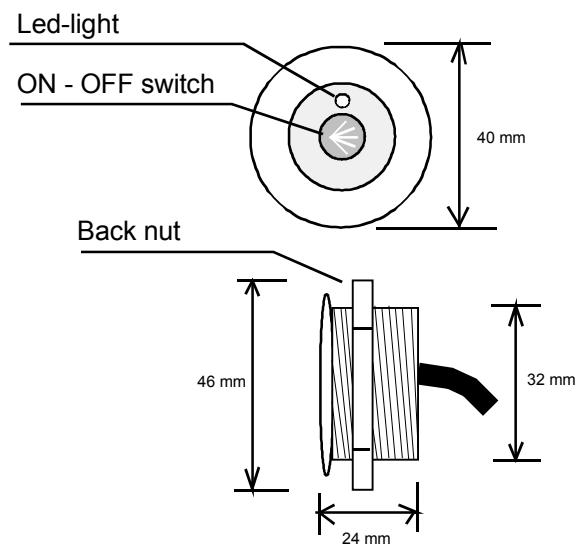
INSTALLATION OF THE CONTROL MODULE, PUSH BUTTON AND THE THERMOSTAT:

The control module is factory sealed to withstand use in the humidity of the steam room. It can be installed directly against the wall, fixed with suitable screws through the two fixing holes and sealed in place with silicone sealed. A hole should be drilled in the wall to feed the control cable back to the generator - this may be directly behind the control or just below. This hole should be silicone sealed against ingress of moisture.

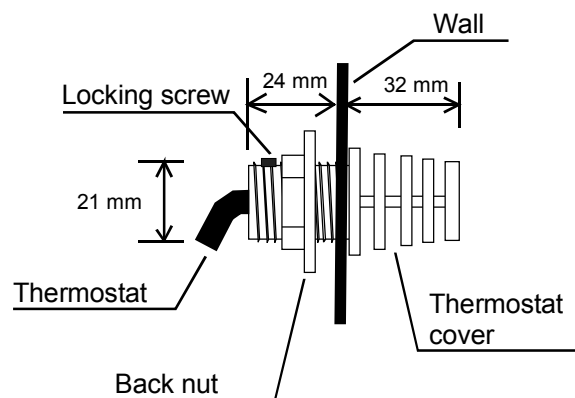
The decorative bezel in Chrome or White is designed to clip fit onto the control housing. This bezel is removed with the supplied tool. Using this tool lightly press the locking pin in each of the 4 holes around the perimeter whilst pulling the frame away from the control body.



The push button has been factory sealed to withstand the humidity of the steam room. Dependent on the type of wall the button is fitted by drilling a suitable hole and either securing with the back nut (acrylic walls) or setting into position with silicone sealant (solid walls). If necessary a surface mount box may be used.



The thermostat should be fitted 170 cm above floor level, ideally on the wall opposite the door. Drill a suitable hole and secure thermostat either with the locknut (acrylic walls) or by setting in place with silicone sealant (solid walls). Ensure that a good tight seal is made to avoid ingress of moisture to the wall. The thermostat is inserted into its decorative casing.



FLUSHING AND RINSE

The generator should be emptied after each use. Since chalk and scale will naturally adhere to the internal components, it is important to drain the tank while the water is still hot. This ensures that no chalk builds up on the elements, tank or sensors. Install an 18/16mm copper or heat resistant silicone pipe from the flushing valve into the floor drain. The pipe's internal diameter should be approx. 14-16mm. **NOTE:** draining the tank does not preclude the requirement for regular removal of lime from the tank.

As an **additional extra**, the generator can be fitted with an electrically operated Drain Kit M, (automatic flushing and rinsing function). After 15 minutes from the shutdown of the generator, the electric flushing valve will open. When the tank is empty, the generator will refill with cold water and flush again (rinse). This function is in both control module and pressure button versions. In the pressure button version, when the generator has stopped, the LED by the button will flash every second during the 15 minute waiting time before the flush and rinse. After the cycle has run, the generator will await a new start-up command.



ELECTRIC FLUSHING VENT Drain Kit M (Optional extra)

HSS M and HST M generators flushing vent installation

- Use PTFE pipe tape to seal the thread in the electric valve connection.
- Connect the cable provided into the electric valve and lock it in place with the lock nut. The other end of the cable is connected directly to the AMP terminals on the circuit card. (see connection diagram.) **NOTE!** Electrical connections can only be made by a qualified electrician
- Install a pipe from the flushing valve into the floor drain. **NOTE!** Drainage of water from the tank relies on gravity so the generator must be installed higher than the floor drain.

ALARMS

Control module

E1 At start-up or while the steam generator is running, indicates interruption in water supply to the generator. Check that the stop valve is fully open and that the filter in the water feed connection is clean. If the problem is in the generator, it might require service.

E2 Indicates failure in the circuit between the control module and the generator. Service is necessary

The generator will stop when an error is detected. Fix the problem or call in service personnel. Control module can be reset using the ON/OFF button.

On generator fitted with a **push button**, the LED light in the button will blink rapidly when an error is detected; e.g. steam was turned on while the water supply was isolated or for some other reason water flow to the generator was restricted. This error will also be generated if the water flow is interrupted during operation. Error message can be reset by pressing the button. Fix the problem or call in service personnel.

Circuit card includes 24V DC max 50 mA output for external alarms. The output is activated when E1 or E2 errors occur or when the pressure button's led blinks rapidly. Alarms can be reset using the ON/OFF button.

HSS M and HST M STEAM GENERATOR SERVICING

HSS M and HST M generators include a pre-programmed, automatic function, which drains and rinses the tank after each use. This requires the use of an optional electric flush valve, Drain Kit M. A long service life is also achieved by emptying the steamer tank immediately after use in areas where the water is known to be hard or contain contaminants. **Note!** Draining the tank does not preclude the need for the regular removal of lime from the tank.

Testing water quality and de-scaling for HSS M and HST M generators

Test strips included in the test pack supplied with the generator are used as follows: Submerge the test strip into the water for approximately one second, lift it up and shake excess water off. Compare the test strip to the colour coded instructions provided in the packet after waiting one minute.

Test result: < 3° dH, Very soft water, de-scaling after 500 hours of use.
> 4° dH, Soft water, de-scaling after 100 hours of use.
> 7° dH, Medium hard water, de-scaling after 50 hours of use.
> 14° dH, Hard water, de-scaling after 30 hours of use. Installation of the limescale removal treatment equipment is recommended.
> 21° dH, Extremely hard water. Install the limescale removal equipment and test water hardness again.

These maintenance intervals are the maximum times as recommended by the manufacturer. It may be worthwhile carrying out the removal of lime even more frequently, when necessary.

**Warranty for the equipment is void, if the generator installation or use is not in accordance with what has been stipulated in these instructions.
The warranty also excludes functional problems, if they are caused by so called hard or otherwise impure water.
The steam generator must be serviced as instructed in the user manual.**

DE-SCALING INSTRUCTIONS

As an **optional extra**, the generator can be fitted with a Descaling Kit, to facilitate the addition of citric acid solution into the tank. De-scaling of HSS M and HST M steamers is carried out by installing the pipe with filler in line between the generator and pressure release valve. (see illustration)

Remove parts from packaging. Unscrew pressure release valve from generator and attach filler pipe using PTFE tape provided to ensure a good seal. Use only Citric Acid recommended by Saunatec, to ensure the process poses no health risks.



This is how you de-scale using citric acid

1. Add 50g (one bag) of citric acid to approx. 1 litre of water and mix well. Let it dissolve into the water.
2. Lift the plastic protective cover from the generator and open the filling pipe tap.
3. Pour the liquid into the steamer's tank using a suitable funnel and close the tap.
4. Start the generator normally and let the water boil for about 10 minutes. Then stop the generator and continue depending on whether the generator has been fitted with an automatic or a manual flushing valve:
 - **Automatic flushing valve:** The generator will empty and rinse itself after 15 minutes of idle time. After the first flush, generator is started again and water is allowed to fill the tank. The generator is stopped again and it will flush and rinse after 15 minutes. This can be repeated about 3 - 5 times.
 - **Manual flush valve:** After boiling, let the citric acid work in the tank for about 15 minutes and empty the tank by opening the flush valve. Close the valve after the tank is empty, start the generator again and let the water fill the tank. Stop and empty the generator again. Repeat 3 - 5 times.

The generator is ready for use straight after de-scaling. If the steam room is filled with a citric scent after treatment, rinse the generator again. Use of citric acid is not harmful to health.

STEAMERS IN PROFESSIONAL USE

In addition to de-scaling treatment, a further service plan is recommended if the generator is in daily use (5 or more hours). Servicing is recommended at least twice a year so that elements, water level sensor and the tank will be checked internally for lime-scale build-up. Parts damaged by scale should be replaced. The tank may be cleaned following removal of the elements.